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Research on University Physics Teaching Reform through Curriculum Ideological and Political Integration

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Abstract: With the proposal of the fundamental task of "cultivating morality and cultivating people," ideological and political education in universities has ushered in a new opportunity for reform. Given this, universities and university teachers should uphold the ideological and political ideas of the curriculum, give full play to the hidden role of curriculum education, and impart knowledge and skills to students at the same time. Teachers should imperceptibly infiltrate ideological and political education to the students and help them establish correct ideas, concepts, and cognition, to lay a solid foundation for their future comprehensive development. In this regard, this paper briefly analyzes the reform of college physics teaching based on curriculum ideological and political integration, hoping to provide readers with some valuable references.

Keywords: Curriculum thought and politics; College physics; Teaching reform

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1. Introduction

In the higher education system, college physics is an important basic course, which is rich in content and involves many fields, which can broaden students' horizons, strengthen their understanding, and lay a solid foundation for improving their professional quality. However, in the past college physics teaching process, some teachers still adopted the traditional and outdated teaching mode, which not only seriously affects the improvement of physics teaching effect but also has a certain impact on the ideological and political construction of the curriculum. Because of this, against the background of curriculum ideology and politics, universities and teachers must reform and optimize the traditional teaching mode and method, stimulate students' interest in learning, mobilize their enthusiasm and initiative, improve teaching effect through various ways and means, help students establish correct ideas and values, and lay a foundation for their all-around development in the future.

2. Overview of curriculum ideology and politics

2.1. Connotation

Curriculum ideology and politics are new educational concepts that align with the requirements for developing the current education field in China. It emphasizes the infiltration of ideological and political education in the teaching of physics teaching, basic subject teaching, and other courses. The main purpose is to cultivate students' social responsibility, help them establish the correct idea, and value cognition. Curriculum ideological and political education is not only a supplement to ideological and political courses, but also a comprehensive optimization and upgrading of teaching content and teaching methods, which emphasizes that physics teachers impart curriculum knowledge and skills to students at the same time, imperceptibly into ideological and political education to shape their excellent character [1].

The main core of curriculum ideological and political education is the organic integration of professional education with ideological and political education. This gives full play to the role of curriculum education so that students can learn professional knowledge at the same time, and have a deep understanding of China's national development process, major development strategies, socialist core values, and many more. This also promotes them to form a sense of identity with China's system, broaden their horizons, form strong national self-confidence and pride, and become compound talents who meet the needs of industry development [2].

2.2. The significance of integrating curriculum ideology and politics into college physics teaching

Firstly, the training of professional talents is in line with the needs of social and enterprise development. Integrating curriculum ideology and politics into college physics teaching can not only impart physics knowledge and skills to students but also effectively strengthen students' sense of responsibility, help them establish correct ideology and value cognition, make them fully realize the important role of their major in the process of social development, to enhance students' sense of service and professional quality. This awareness and accomplishment are of vital importance to their future career development [3].

Secondly, the reform of physics teaching should be promoted. Integrating curriculum ideology and politics into physics teaching can effectively promote curriculum teaching reform. This can not only enrich the teaching content, expand the teaching form, and improve the physics teaching effect, but also enhance the students' professional quality. Simultaneously, in this process, teachers also need to optimize the course teaching design, to meet the needs of students' development in the new era [4].

3. Problems in the process of integrating curriculum ideology and politics into college physics teaching

3.1. Lack of teaching resources

In the process of college physics teaching, teachers rely on teaching materials and other teaching resources to a high degree. Based on this, they integrate physics teaching with ideological and political education through scientific and reasonable teaching methods, to form a complete system of curriculum ideological and political teaching and create a good atmosphere for students to improve their comprehensive literacy [5]. However, from the actual situation, the content of college physics textbooks is relatively old, mainly based on theoretical knowledge, and lacks the content of ideological and political education, which invisibly affects the improvement of the ideological and political effect of the curriculum [6].

3.2. Cognitive bias in teaching

When carrying out physics teaching, some teachers adopt traditional teaching methods and teaching modes and unilaterally believe that they are responsible for physics teaching, cultivating students' physics literacy, and ideological and political education is the work of ideological and political teachers and counselors only. This misinformed cognition leads to a serious "two-layer" phenomenon in the integration of curriculum ideological and political education in physics teaching, which not only seriously affects the improvement of physics teaching effect but also difficult to give full play to the role of ideological and political education in the course [7]. Additionally, some physics teachers believe that the lack or inability to effectively integrate ideological and political elements into the physics teaching process leads to the failure to promote the construction of ideological and political curricula, thus hindering the overall improvement of students' comprehensive literacy [8].

3.3. Single teaching method

As important organizers and participants in teaching activities, teachers should conduct a comprehensive study on curriculum ideological and political teaching with physics teaching. Based on the characteristics of physics teaching and students' learning conditions, teachers should constantly optimize and innovate teaching methods, integrate ideological and political education with professional knowledge in a scientific way, and infiltrate ideological and political education into students while imparting physics knowledge [9]. However, in the past physics teaching process, influenced by traditional thinking, some teachers still adopted a single and outdated teaching method to "indoctrinate" and "preach" to students, resulting in a dull classroom teaching atmosphere, which can seriously affect the improvement of classroom teaching, and at the same time fail to give full play to the role of ideological and political education in the course. Thus, affecting the improvement of students' ideological, political accomplishment, and physics teaching accomplishments [10].

4. The reform and innovation path of university physics teaching under the curriculum ideological and political perspective

4.1. Improve teachers' quality and innovate their ideas

In the process of promoting curriculum ideological and political construction, teachers play an important role. Firstly, universities should organize and carry out relevant training activities regularly, to renew their outdated teaching concepts. Concurrently, excellent teachers in the same industry can be invited to give special lectures to share advanced teaching experience and scientific teaching mode, to improve the teaching quality and ability of physics teachers [11]. Moreover, universities should increase resource investment and establish teacher development centers to provide teachers with personalized career development planning and guidance, to gradually improve teachers' professional quality.

Secondly, universities should also do a good job of introducing talent. In the process of hiring teachers, priority should be given to physics teachers who have rich experience and remarkable educational achievements in ideological and political education. Furthermore, universities can establish in-depth cooperative relations with relevant educational research institutions and introduce experts with advanced and high-level curriculum ideological and political theory and practical experience, to lay a foundation for the smooth promotion of curriculum ideological and political construction [12].

Finally, universities should establish and improve the incentive mechanism to encourage teachers to

make bold explorations and practice in curriculum ideology and politics, to better integrate it into physics teaching, train students' physics knowledge more effectively, strengthen their professional quality, and make them become professionals needed by society and enterprise development. Synchronously, universities can also set up special funds to give appropriate spiritual and material rewards to teachers who have made outstanding achievements in the course of ideological and political education [13]. Also, universities can organize and carry out teaching achievements exhibitions regularly to display the teaching achievements and teaching innovations of outstanding individuals. Through a variety of ways and means, the enthusiasm and initiative of teachers are stimulated so that they will take the initiative to participate in the curriculum ideological and political construction. Likewise, universities should also build a feedback mechanism to encourage students and staff to supervise and evaluate teachers' teaching work. In this way, teachers should be encouraged to reform and optimize their teaching methods and enrich their teaching contents to promote the curriculum ideological and political and bring it into full play [14].

4.2. Exploring ideological and political elements to improve educational effectiveness

To integrate curriculum ideology and politics into college physics teaching, while imparting physics knowledge to students, college teachers should explore ideological and political elements according to teaching content and students' learning situation to lay a solid foundation for promoting curriculum ideological and political construction.

For example, when teaching physics knowledge, teachers can teach students the story of the great physicist, Albert Einstein. Einstein's parents were Jewish, and he was very fond of higher mathematics since he was a child. When he wanted to be ambitious after graduating from college, the cruelty of reality was constantly hitting him. He did not get the job of assistant professor in college as he wished, and he could only get a part-time tutor to earn a living. From a probationary employee to a formal one, Einstein never gave up on his dream and pursued research tirelessly. In March 1905, he published his Quantum Theory, and in May of the same year, he proposed the Special Theory of Relativity [15]. By sharing the stories of scientists, teachers can not only enrich the teaching content and stimulate students' interest in learning but also help students establish correct thoughts, concepts, and cognition, laying a solid foundation for their future learning and development.

4.3. Innovate teaching methods to stimulate students' interest in learning

There is a close relation between teaching methods and teaching effects. In this regard, under the background of ideological and political curriculum, to improve the classroom teaching effect and give full play to the role of ideological and political education, college teachers must innovate the traditional teaching methods, stimulating students' interest and promoting their all-round development as the guidance. Also, use various ways and means to improve the classroom teaching effect and help them shape excellent quality and foundation for their future.

4.3.1. Use multimedia to enrich the teaching situation

At present, with the rapid development of information technology, teachers can organically integrate information technology and physics teaching to enrich the teaching content and stimulate students' interest, improve the classroom teaching effect, penetrate ideological and political education to students more

effectively, and improve the educational effect.

4.3.2. Use the new media platform to expand the area of education

As of now, new media has become an important part of college students' daily study lives. In this regard, teachers can use the new media platform to carry out physics course teaching, which not only imparts physics knowledge to students but also penetrates ideological and political education, to improve the education effect. Accordingly, teachers can also make use of new media tools such as WeChat public account, Weibo, and Douyin to regularly release some popular science knowledge or current affairs related to physics. In this way, teachers can stimulate students' interest in learning, broaden their horizons, and expand the area of education. What's more, teachers can also make use of the data collection and analysis function of the new media platform to collect students' feedback and suggestions, analyze their learning behavior data, and on this basis, timely adjust teaching strategies, to improve the effectiveness of ideological and political education in the curriculum and lay a solid foundation for promoting students' all-round development.

4.4. Optimize the evaluation system and improve the ideological and political effectiveness of the curriculum

As an important part of college curriculum teaching, teaching evaluation plays a very prominent role in improving the teaching effect and developing professional quality. Therefore, in the teaching practice, to better implement the ideological and political elements in the curriculum and integrate them into physics teaching, teachers should combine the characteristics of students' ideological cognition and consciousness to reform the teaching evaluation.

Firstly, teachers should not only pay attention to the assessment and evaluation of physics knowledge and skills, but also build a diversified evaluation system integrating academic performance, practical performance, and emotional attitude as soon as possible. Also, gradually correct students' learning attitudes and ideological concepts with comprehensive evaluation criteria, to promote ideological and political elements to fully penetrate the whole teaching process.

Secondly, physics teachers should adopt a combination of process and result evaluation methods to evaluate students. In this way, teachers can have a more comprehensive and in-depth understanding of students' learning processes and learning results. They should also evaluate their dynamic performance in the learning process while paying attention to their final learning results, to improve the scientificity and accuracy of the evaluation results. Teachers can also encourage students to evaluate by means of self-evaluation and mutual evaluation, so as to cultivate the improvement of students' self-reflection ability.

5. Conclusion

In the new era, to better promote the fundamental task of cultivating morality and educating people, universities and teachers must optimize and reform the traditional physics teaching, based on the development of the modern times, use new thinking and new methods, create a new situation of physics teaching, and promote the all-round development of students.

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